

REMARKS

General:

Claims 1-18 are pending in this application. Claims 7-12 stand withdrawn from consideration. Claims 1-6 and 13-18 stand rejected. Claims 1 and 13 are amended. No new matter has been added by this amendment.

Election/restriction:

Claims 7-12 were restricted out on the ground that the method claimed could be used to make a materially different product, that is to say, saw blade with a rougher surface finish than that claimed in claims 1 and 13. The Office action notes that the election was made without traverse. However, Applicant's representative recalls that the election of group I was made with traverse. It is believed that there was a miscommunication between Applicant's representative and the Examiner on this.

Claims 7-12 have been amended to recite a method of making a product with the surface finish recited in claims 1 and 13. As such, the restricted groups are linked together. Thus, the ground for restriction is, therefore, believed no longer to apply, and reconsideration is requested.

35 U.S.C. § 102:

Claims 1, 2, 6, 13, 14, and 18 stand rejected as anticipated by U.S. Patent No. 5,802,932 (Vankov et al.). Vankov shows a cutter for an electric shaver. The cutter is made from material with a surface roughness Ra of less than 1 μm (0.04 microinches), which becomes the final finish on one side. The other side is electropolished to a roughness Ra of less than 5 μm , preferably about 0.5 μm (0.02 microinches).

Claim 1 has been amended to define a saw blade in which the finish is a finish with reduced embrittlement obtainable by a process of rotating the saw blade with abrasive finishing media in an inner vessel of a high speed centrifugal finishing apparatus having an outer vessel and at least one inner vessel that rotates at high speed relative to the outer vessel. Basis for the amendment is found in the description at page 10, lines 3 to 21. There

is no disclosure or suggestion in Vankov of such a finish. Vankov discloses only an electropolishing process that would not affect the mechanical properties of the blade and, in particular, could not produce the reduced embrittlement achieved by the process of the present invention as now claimed.

An electropolishing process operates by the removal of material from a surface, i.e., taking away the high points on the metal surface. Thus, the material characteristics of the metal itself does not change. It just becomes less coarse.

The claims surface, however, is structurally different. The surface is cold plastically deformed. That is, abrasive particles are rotated at high speeds and energy causing the surface layer of the materials to be uniformly deformed. As described in the application, the process produces a product that is structurally different. The surface of the product is impacted so as to be compressed into a highly polished surface with reduced embrittlement compared to the unfinished state.

The reduced embrittlement is a distinct property of the saw blade, and is an outward sign of differences in the metallurgical structure of the blade, caused by the centrifugal finishing process. There is no disclosure or suggestion of that different structure in Vankov's blade, and it is therefore believed that the present invention, as now claimed in claims 1 and 13, is both new and non-obvious over Vankov.

The product-by-process formulation is proper under MPEP § 2113 because the surface finish, which combines high surface finish with reduced embrittlement, reduced residual stress, and/or reduced surface inclusions, cannot readily be defined in purely structural terms. The MPEP does not limit the type of format that may be used for product-of-a-process claims. As such, to clarify that the scope of the claim is based on the product itself, and not on the process, the formulation "obtainable by" the process has been used.

Claims 2, 6, 14, and 18 are respectively dependent from claims 1 and 13 and, without prejudice to their individual merits, are believed to be novel and non-obvious over Vankov for the same reasons as claim 1. With reference to claims 2 and 14, however, it is respectfully pointed out that Vankov does not appear to disclose a saw blade including a cutting tip with a width substantially equal to the width of the blade portion. Vankov's

device cuts by a slicing cut between the sharp edges 31 and 33 of the two cutters. The only structure that can be identified as a "cutting tip" is some part of the edges 31 and 33, which have a thickness far less than that of the blades 2 and 29.

Accordingly, based on the foregoing, it is respectfully submitted that claims 1, 2, 6, 13, 14, and 18 are not only new but also non-obvious over Vankov.

35 U.S.C. § 103:

Claims 3 and 15 stand rejected as obvious over Vankov in view of U.S. Patent No. 5,555,788 (Gakhar et al.) Gakhar is cited only as showing a circular saw blade with PTFE-coated anti-kickback portions. Claims 3 and 15 are dependent from claims 1 and 13, and are believed to be novel and non-obvious over the combination of Vankov and Gakhar for the same reasons as claims 1 and 13 are believed to be novel and non-obvious over Vankov alone.

In addition, however, the examiner's reason for the obviousness rejection is that "it would have been obvious ... to provide the device of Vankov et al. with an anti-kickback portion...." It is respectfully pointed out that would not have been obvious, because an anti-kickback portion would not have been useful in Vankov's device. An anti-kickback portion, such as that shown by Gakhar, is applicable only where the tips of the teeth cut outwards in the plane of the blade, to prevent the tips from cutting too deeply. Vankov's device, as noted above, cuts with a shearing action between the edges 31 and 33 of the blades. There is nowhere on Vankov's blade where an anti-kickback portion could rationally be provided. For this reason also, it is believed that the present invention, as now claimed in claims 3 and 15, is non-obvious over the cited references.

Claims 4, 5, 16, and 17 are rejected as obvious over Vankov alone, on the ground that "where the general conditions of a claim are disclosed in the prior art, discovering the optimum and workable ranges involves only routine skill in the art," citing to *In re Aller*, 105 USPQ 233. The examiner's wording mis-states the holding of *In re Aller*. As correctly quoted at MPEP § 2144.05, what it actually says is "[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235

(CCPA 1955). The Court then proceeded to a detailed factual inquiry to determine whether the claimed ranges would have been obvious or not. To establish a *prima facie* case of obviousness, the examiner must show that the claimed ranges would have been discovered "by routine experimentation." This the examiner has not attempted to do. In fact, Vankov's electropolishing process is being used not only to finish the blades but also to form the cutting edges, and Vankov specifically teaches that a cutting edge sharpness of 10 to 15 μm (0.4 to 0.6 microinches) is too dull (col. 1, line 50), clearly teaching that the ranges of claims 4, 5, 16, and 17 would not have been "optimum or workable" for Vankov's purpose. For this reason also, it is believed that the present invention, as now claimed in claims 4, 5, 16, and 17, would not have been obvious over Vankov.

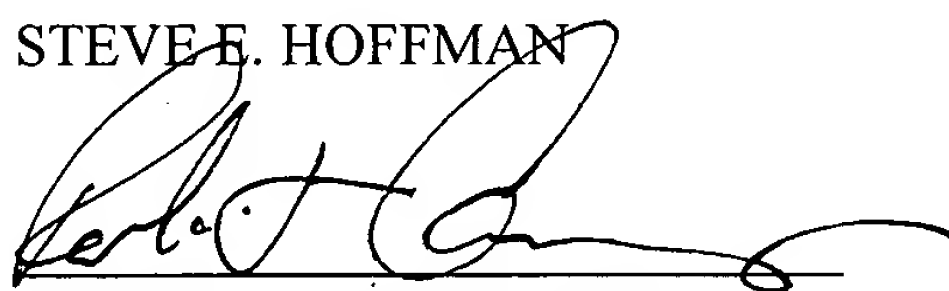
Conclusion:

In view of the foregoing, it is believed that the present invention, as now claimed, is not only new but also non-obvious over the cited prior art. Reconsideration and withdrawal of the examiner's rejections and an early notice of allowance of all claims are earnestly solicited.

Respectfully submitted,

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